

Application Serial No.: 09/623,519
Amendment dated September 2, 2003
Reply to Office Action dated May 30, 2003

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A diagnostic system for fluid machinery comprising:

first identifying means for inputting prescribed data on the fluid machinery to be diagnosed and identifying the characteristics of the fluid machinery represented by flow rate-head characteristics;

second identifying means for identifying the operating flow rate or operating pressure of the fluid machinery according to the relationship between the identified characteristics of the fluid machinery and a measured operating pressure or operating flow rate of the fluid machinery by operating the fluid machinery to be diagnosed and inputting the measured results of the operating pressure (head), operating flow rate, power consumption, or operating electric current of the fluid machinery in operation; and

processing means for computing variations in the operating flow rate, operating pressure, or power consumption while the rotational speed of the fluid machinery to be diagnosed is varied, and for displaying the computed results,

wherein said first identifying means functions by inputting one or more of the following data (1-11) regarding the fluid machinery:

1. Diameter (or numerical order) of suction port
2. Diameter (or numerical order) of discharge port
3. Rated output of motor driving the fluid machinery
4. Number of poles of motor driving the fluid machinery
5. Operating frequency of motor driving the fluid machinery

6. Rating plate specifications (flow rate-head) of the fluid machinery

7. Model name of the fluid machinery

8. Manufacturer's name of the fluid machinery

9. Number of impeller stages of the fluid machinery

10. Outer diameter of impeller of the fluid machinery

11. Test data regarding the flow rate-head and the flow rate-power consumption of the fluid machinery.

2. (Canceled)

3. (Original) A diagnostic system for fluid machinery as claimed in claim 1, wherein said characteristics of the fluid machinery identified by said first identifying means are refined by inputting the power consumption at the actual operating point.

4. (Original) A diagnostic system for fluid machinery as claimed in claim 3, wherein said characteristics of the fluid machinery identified by said first identifying means are refined by inputting the operating pressure and/or power consumption at the shutoff operating point separate from the actual operating point.

5. (Original) A diagnostic system for fluid machinery as claimed in claim 1, wherein said computed results obtained by said processing means are refined by inputting values of actual head.

6. (Currently Amended) A diagnostic system for fluid machinery capable of finding with high accuracy wasteful energy consumption in the fluid machinery and its peripheral devices, comprising:

a controller having a frequency converter as a primary component for reducing the

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estimated wasteful energy consumption, said controller being used in combination with said ~~diagnostic system as claimed in claim 1;~~

first identifying means for inputting prescribed data on the fluid machinery to be diagnosed and identifying the characteristics of the fluid machinery represented by flow rate-head characteristics;

second identifying means for identifying the operating flow rate or operating pressure of the fluid machinery according to the relationship between the identified characteristics of the fluid machinery and a measured operating pressure or operating flow rate of the fluid machinery by operating the fluid machinery to be diagnosed and inputting the measured results of the operating pressure (head), operating flow rate, power consumption, or operating electric current of the fluid machinery in operation; and

processing means for computing variations in the operating flow rate, operating pressure, or power consumption while the rotational speed of the fluid machinery to be diagnosed is varied, and for displaying the computed results.

7. (Original) A diagnostic system for fluid machinery as claimed in claim 6, wherein the rotational speed of the fluid machinery is varied by changing the frequency generated by said frequency converter with said controller, and the actual head or head loss caused by piping is found by comparing the operating pressure for each rotational speed when the valve is open to that when the valve is closed.

8. (Currently Amended) A recording medium capable of being read by a computer for storing programs to enable the computer to implement the functions of:

identifying the characteristics of the fluid machinery represented by flow rate-head

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characteristics by inputting prescribed data on the fluid machinery to be diagnosed;

identifying the operating flow rate or operating pressure of the fluid machinery according to the relationship between the identified characteristics and a measured operating pressure or operating flow rate of the fluid machinery by operating the fluid machinery to be diagnosed and inputting the measured results of the operating pressure (head), operating flow rate, power consumption, or operating electric current of the fluid machinery in operation; and

computing variations in the operating flow rate, operating pressure, or power consumption when the rotational speed of the fluid machinery to be diagnosed is varied, and displaying the computed results,

wherein said inputting prescribed data on the fluid machinery to be diagnosed comprises inputting one or more of the following data (1-11) regarding the fluid machinery:

1. Diameter (or numerical order) of suction port
2. Diameter (or numerical order) of discharge port
3. Rated output of motor driving the fluid machinery
4. Number of poles of motor driving the fluid machinery
5. Operating frequency of motor driving the fluid machinery
6. Rating plate specifications (flow rate-head) of the fluid machinery
7. Model name of the fluid machinery
8. Manufacturer's name of the fluid machinery
9. Number of impeller stages of the fluid machinery
10. Outer diameter of impeller of the fluid machinery

11. Test data regarding the flow rate-head and the flow rate-power consumption of the fluid machinery.

9. (Currently Amended) A diagnostic system for fluid machinery comprising:
first identifying means for identifying the characteristics of the fluid machinery represented by flow rate-head characteristics of the fluid machinery to be diagnosed;
second identifying means for identifying the actual operating point of the fluid machinery to be diagnosed; and
processing means for computing variations in the operating point when the rotational speed of the fluid machinery to be diagnosed is varied, and for displaying the computed results,

wherein said first identifying means functions by inputting one or more of the following data (1-11) regarding the fluid machinery:

1. Diameter (or numerical order) of suction port
2. Diameter (or numerical order) of discharge port
3. Rated output of motor driving the fluid machinery
4. Number of poles of motor driving the fluid machinery
5. Operating frequency of motor driving the fluid machinery
6. Rating plate specifications (flow rate-head) of the fluid machinery
7. Model name of the fluid machinery
8. Manufacturer's name of the fluid machinery
9. Number of impeller stages of the fluid machinery
10. Outer diameter of impeller of the fluid machinery

11. Test data regarding the flow rate-head and the flow rate-power consumption of the fluid machinery.

10. (Currently Amended) A method for diagnosing fluid machinery comprising:
identifying the characteristics of the fluid machinery represented by flow rate-head characteristics of the fluid machinery to be diagnosed;

identifying the actual operating point of the fluid machinery to be diagnosed; and
computing variations in the operating point when the rotational speed of the fluid machinery to be diagnosed is varied, and

displaying the computed results,

wherein said identifying the characteristics of the fluid machinery comprises inputting one or more of the following data (1-11) regarding the fluid machinery:

1. Diameter (or numerical order) of suction port
2. Diameter (or numerical order) of discharge port
3. Rated output of motor driving the fluid machinery
4. Number of poles of motor driving the fluid machinery
5. Operating frequency of motor driving the fluid machinery
6. Rating plate specifications (flow rate-head) of the fluid machinery
7. Model name of the fluid machinery
8. Manufacturer's name of the fluid machinery
9. Number of impeller stages of the fluid machinery
10. Outer diameter of impeller of the fluid machinery
11. Test data regarding the flow rate-head and the flow rate-power consumption of

the fluid machinery.

11. (Currently Amended) A method for identifying characteristics of fluid machinery comprising:

calculating the head and shaft power for flow rates by determining representative points for characteristics of fluid machinery including a representative head and representative shaft power and by determining the ratios of head and shaft power other than the representative flow rate to the representative head and representative shaft power based on the port diameter of the fluid machinery, the number of impeller stages, and the rated output and rated rotational speed of the motor used to drive the fluid machinery;

estimating provisional characteristics of the fluid machinery based on the calculated head and shaft power; and

identifying characteristics of the fluid machinery and the operating point including the operating flow rate by correcting said provisional characteristics of the fluid machinery based on measurement data including at least the head and power consumption during current operations,

wherein said calculating comprises inputting one or more of the following data (1-11) regarding the fluid machinery:

1. Diameter (or numerical order) of suction port
2. Diameter (or numerical order) of discharge port
3. Rated output of motor driving the fluid machinery
4. Number of poles of motor driving the fluid machinery
5. Operating frequency of motor driving the fluid machinery

6. Rating plate specifications (flow rate-head) of the fluid machinery
7. Model name of the fluid machinery
8. Manufacturer's name of the fluid machinery
9. Number of impeller stages of the fluid machinery
10. Outer diameter of impeller of the fluid machinery
11. Test data regarding the flow rate-head and the flow rate-power consumption of the fluid machinery.
12. (Original) A method for identifying characteristics of fluid machinery as claimed in claim 11, wherein said representative points are set as the flow rate producing maximum efficiency in the fluid machinery, the head calculated using estimated values of efficiency for the fluid machinery, and the rated output of the motor.
13. (Original) A method for identifying characteristics of fluid machinery as claimed in claim 11, wherein said representative points are set as the flow rate and head calculated using at least two points of standard specifications including the flow rate and head of the fluid machinery, and the rated output of the motor.
14. (Original) A method for identifying characteristics of fluid machinery as claimed in claim 12, wherein said provisional characteristics of the fluid machinery are corrected by the flow rate calculated using head and power consumption during current operations and the estimated values of efficiency for the fluid machinery and motor.
15. (Original) A method for identifying characteristics of fluid machinery as claimed in claim 12, wherein said provisional characteristics of the fluid machinery are corrected by the flow rate calculated using head and power consumption during current operations and the

estimated values of efficiency for the fluid machinery and motor, and the head and power consumption during shutoff operations.

16. (Original) A method for identifying characteristics of fluid machinery as claimed in claim 12, wherein said provisional characteristics of the fluid machinery are corrected by the flow rate calculated using head and power consumption during current operations and the estimated values of efficiency for the fluid machinery and motor, and the head and power consumption during operations when the valve is fully open.

17. (Original) A method for identifying characteristics of fluid machinery as claimed in claim 12, wherein said provisional characteristics of the fluid machinery are corrected by the flow rate calculated using head and power consumption during current operations and the estimated values of efficiency for the fluid machinery and motor, and the head and power consumption during shutoff operations and during operations when the valve is fully open.

18. (Original) A method for identifying characteristics of fluid machinery as claimed in claim 13, wherein the operating point (flow rate) is identified by said provisional characteristics of the fluid machinery and the head during current operations, and said provisional characteristics are corrected by the current power consumption.

19. (Original) A method for identifying characteristics of fluid machinery as claimed in claim 13, wherein the operating point (flow rate) is identified by said provisional characteristics of the fluid machinery and the head during current operations, and said provisional characteristics are corrected by the current power consumption and the power consumption when the valve is fully open.

20. (Original) An energy-saving pre-diagnostic system for fluid machinery,

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comprising:

inputting means for inputting flow rate-pressure (head) and flow rate-power consumption data for fluid machinery having a motor driven by a commercial AC power, and design specifications (flow rate-pressure) in a facility side;

inputting or estimating means for inputting or estimating resistance of piping (actual head) when the flow rate is zero;

calculating means for calculating the reduction in power consumption achieved when reducing the rotational speed of the fluid machinery with a frequency converter; and

processing means for displaying the calculated results.

21. (Original) A recording medium capable of being read by a computer for storing programs to enable the computer to implement the functions of:

inputting flow rate-pressure (head) and flow rate-power consumption data for fluid machinery having a motor driven by a commercial AC power, and design specifications (flow rate-pressure) in a facility side;

inputting or estimating resistance of piping (actual head) when the flow rate is zero;

calculating the reduction of power in consumption achieved when reducing the rotational speed of the fluid machinery with a frequency converter; and

displaying the calculated results.

22. (Currently Amended) A method for displaying the characteristics of fluid machinery, comprising:

inputting one or more of the following data (1-11) regarding the fluid machinery: (1)

Diameter (or numerical order) of suction port (2) Diameter (or numerical order) of discharge

port (3) Rated output of motor driving the fluid machinery (4) Number of poles of motor driving the fluid machinery (5) Operating frequency of motor driving the fluid machinery (6) Rating plate specifications (flow rate-head) of the fluid machinery (7) Model name of the fluid machinery (8) Manufacturer's name of the fluid machinery (9) Number of impeller stages of the fluid machinery (10) Outer diameter of impeller of the fluid machinery (11) Test data regarding the flow rate-head and flow rate-power consumption of the fluid machinery;

displaying the flow rate-pressure characteristics of the fluid machinery varied according to the rotational speed on the same surface using a plurality of curves; and displaying data related to the power consumption on the same surface.

23. (Previously Presented) A method for displaying the characteristics of fluid machinery as claimed in claim 22, further comprising numerically displaying data related to the power consumption adjacent to each curve representing the flow rate-pressure characteristics.

24. (Currently Amended) A method for displaying the characteristics of fluid machinery ~~as claimed in claim 22, further comprising:~~

displaying the flow rate-pressure characteristics of the fluid machinery varied according to the rotational speed on the same surface using a plurality of curves;

displaying data related to the power consumption on the same surface; and

displaying on the same surface a reference selection range under a fixed rotational speed of the fluid machinery.

25. (Previously Presented) A method for displaying the characteristics of fluid machinery as claimed in claim 22, further comprising displaying on the same surface data

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related to the power consumption, including at least one of the energy charge or the amount of reduction in the energy charge.

26. (Previously Presented) A method for displaying the characteristics of fluid machinery as claimed in claim 22, further comprising displaying on the same surface at least one of the cost of the fluid machinery or the cost of the apparatus required to vary the rotational speed.

27. (Previously Presented) A method for displaying the characteristics of fluid machinery as claimed in claim 22, further comprising displaying on the same surface conditions for calculating data related to the power consumption.

28. (Previously Presented) A display material for displaying the characteristics of the fluid machinery using the method as claimed in claim 22.

29. (Currently Amended) A fluid machinery or an apparatus for varying the rotational speed of the fluid machinery, comprising:

inputting one or more of the following data (1-11) regarding the fluid machinery: (1) Diameter (or numerical order) of suction port (2) Diameter (or numerical order) of discharge port (3) Rated output of motor driving the fluid machinery (4) Number of poles of motor driving the fluid machinery (5) Operating frequency of motor driving the fluid machinery (6) Rating plate specifications (flow rate-head) of the fluid machinery (7) Model name of the fluid machinery (8) Manufacturer's name of the fluid machinery (9) Number of impeller stages of the fluid machinery (10) Outer diameter of impeller of the fluid machinery (11) Test data regarding the flow rate-head and flow rate-power consumption of the fluid machinery;

displaying the flow rate-pressure characteristics of the fluid machinery varied

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according to the rotational speed on the same surface of a promotional material represented by a catalog, using a plurality of curves; and

displaying data related to the power consumption on the same surface of said promotional material.

30. (Currently Amended) A line graph for the power consumption of fluid machinery comprising:

a plurality of curves indicating the flow rate-pressure characteristics of fluid machinery in each of rotational speeds and displayed in a coordinate system; and

a plurality of curves indicating the flow rate-pressure characteristics of the fluid machinery in each of values of power consumption and displayed in said coordinate system,

wherein said line graph is obtained by inputting one or more of the following data (1-

11) regarding the fluid machinery:

1. Diameter (or numerical order) of suction port
2. Diameter (or numerical order) of discharge port
3. Rated output of motor driving the fluid machinery
4. Number of poles of motor driving the fluid machinery
5. Operating frequency of motor driving the fluid machinery
6. Rating plate specifications (flow rate-head) of the fluid machinery
7. Model name of the fluid machinery
8. Manufacturer's name of the fluid machinery
9. Number of impeller stages of the fluid machinery
10. Outer diameter of impeller of the fluid machinery

11. Test data regarding the flow rate-head and the flow rate-power consumption of the fluid machinery.

31. (Previously Presented) A calculating and graphing system, comprising a computer for obtaining the display material of claim 28, by inputting data for the flow rate-pressure characteristics and flow rate-power consumption characteristics of fluid machinery having a motor driven by a commercial AC power.

32. (Original) A recording medium capable of being read by a computer for storing programs to enable the computer to implement the calculating and graphing system as claimed in claim 31.

33. (Previously Presented) A calculating and graphing system, comprising a computer for obtaining the display material of the line graph of claim 30, by inputting data for the flow rate-pressure characteristics and flow rate-power consumption characteristics of fluid machinery having a motor driven by a commercial AC power.

34. (Previously Presented) A recording medium capable of being read by a computer for storing programs to enable the computer to implement the calculating and graphing system as claimed in claim 33.

35. (Currently Amended) An energy-saving diagnostic system for fluid machinery, comprising:

a controller for identifying characteristics of the fluid machinery represented by flow rate-head characteristics of the fluid machinery from inputted data on the fluid machinery to be diagnosed, and calculating a reduction in power consumption achieved when reducing a rotational speed of the fluid machinery, based on the identified characteristics of the fluid

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machinery; and

a storage unit for storing data for outputting the calculated reduction in power consumption,

wherein the inputted data on the fluid machinery to be diagnosed comprises one or more of the following data (1-11) regarding the fluid machinery:

1. Diameter (or numerical order) of suction port
2. Diameter (or numerical order) of discharge port
3. Rated output of motor driving the fluid machinery
4. Number of poles of motor driving the fluid machinery
5. Operating frequency of motor driving the fluid machinery
6. Rating plate specifications (flow rate-head) of the fluid machinery
7. Model name of the fluid machinery
8. Manufacturer's name of the fluid machinery
9. Number of impeller stages of the fluid machinery
10. Outer diameter of impeller of the fluid machinery
11. Test data regarding the flow rate-head and the flow rate-power consumption of

the fluid machinery.

36. (Currently Amended) A method for selecting a device for energy saving in fluid machinery, comprising:

identifying characteristics of the fluid machinery represented by flow rate-head characteristics of the fluid machinery from inputted data on the fluid machinery to be diagnosed;

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calculating a reduction in power consumption achieved when reducing a rotational speed of the fluid machinery, based on the identified characteristics of the fluid machinery;
and

selecting a device for energy saving suitable for achieving the calculated reduction in power consumption,

wherein the inputted data on the fluid machinery to be diagnosed comprises one or more of the following data (1-11) regarding the fluid machinery:

1. Diameter (or numerical order) of suction port
2. Diameter (or numerical order) of discharge port
3. Rated output of motor driving the fluid machinery
4. Number of poles of motor driving the fluid machinery
5. Operating frequency of motor driving the fluid machinery
6. Rating plate specifications (flow rate-head) of the fluid machinery
7. Model name of the fluid machinery
8. Manufacturer's name of the fluid machinery
9. Number of impeller stages of the fluid machinery
10. Outer diameter of impeller of the fluid machinery
11. Test data regarding the flow rate-head and the flow rate-power consumption of

the fluid machinery.

37. (Currently Amended) An energy-saving diagnostic system for fluid machinery, comprising:

a controller for identifying characteristics of the fluid machinery represented by flow

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rate-head characteristics of the fluid machinery from data on the fluid machinery, to be diagnosed, inputted into a user's input device, and calculating a reduction in power consumption achieved when reducing a rotational speed of the fluid machinery, based on the identified characteristics of the fluid machinery; and

a storage unit for storing data for outputting the calculated reduction in power consumption on a user's output device,

wherein the data on the fluid machinery, to be diagnosed, inputted into a user's input device comprises one or more of the following data (1-11) regarding the fluid machinery:

1. Diameter (or numerical order) of suction port
2. Diameter (or numerical order) of discharge port
3. Rated output of motor driving the fluid machinery
4. Number of poles of motor driving the fluid machinery
5. Operating frequency of motor driving the fluid machinery
6. Rating plate specifications (flow rate-head) of the fluid machinery
7. Model name of the fluid machinery
8. Manufacturer's name of the fluid machinery
9. Number of impeller stages of the fluid machinery
10. Outer diameter of impeller of the fluid machinery
11. Test data regarding the flow rate-head and the flow rate-power consumption of the fluid machinery.

38. (Currently Amended) A method for selecting a device for energy saving in fluid machinery, comprising:

identifying characteristics of the fluid machinery represented by flow rate-head characteristics of the fluid machinery from data on the fluid machinery, to be diagnosed, inputted into a user's input device;

calculating a reduction in power consumption achieved when reducing a rotational speed of the fluid machinery, based on the identified characteristics of the fluid machinery; and

selecting a device for energy saving suitable for achieving the calculated reduction in power consumption,

wherein the data on the fluid machinery, to be diagnosed, inputted into a user's input device comprises one or more of the following data (1-11) regarding the fluid machinery:

1. Diameter (or numerical order) of suction port
2. Diameter (or numerical order) of discharge port
3. Rated output of motor driving the fluid machinery
4. Number of poles of motor driving the fluid machinery
5. Operating frequency of motor driving the fluid machinery
6. Rating plate specifications (flow rate-head) of the fluid machinery
7. Model name of the fluid machinery
8. Manufacturer's name of the fluid machinery
9. Number of impeller stages of the fluid machinery
10. Outer diameter of impeller of the fluid machinery
11. Test data regarding the flow rate-head and the flow rate-power consumption of the fluid machinery.

39. (Currently Amended) A method for reducing power consumption and promoting energy saving in fluid machinery by incorporating a device for energy saving into the fluid machinery, the method comprising:

identifying characteristics of the fluid machinery represented by flow rate-head characteristics of the fluid machinery to be diagnosed;

calculating a reduction in power consumption achieved when reducing a rotational speed of the fluid machinery, based on the identified characteristics of the fluid machinery; and

providing the calculated reduction in power consumption to a user,

wherein said identifying comprises inputting one or more of the following data (1-11) regarding the fluid machinery:

1. Diameter (or numerical order) of suction port
2. Diameter (or numerical order) of discharge port
3. Rated output of motor driving the fluid machinery
4. Number of poles of motor driving the fluid machinery
5. Operating frequency of motor driving the fluid machinery
6. Rating plate specifications (flow rate-head) of the fluid machinery
7. Model name of the fluid machinery
8. Manufacturer's name of the fluid machinery
9. Number of impeller stages of the fluid machinery
10. Outer diameter of impeller of the fluid machinery
11. Test data regarding the flow rate-head and the flow rate-power consumption of

the fluid machinery.

40. (Currently Amended) A method for reducing power consumption and promoting energy saving in fluid machinery by incorporating a device for energy saving into the fluid machinery, the method comprising:

identifying characteristics of the fluid machinery represented by flow rate-head characteristics of the fluid machinery to be diagnosed;

refining the identified characteristics of the fluid machinery by inputting power consumption at an actual operating point;

calculating a reduction in power consumption achieved when reducing a rotational speed of the fluid machinery, based on the refined characteristics of the fluid machinery; and

providing the calculated reduction in power consumption to a user,

wherein said identifying comprises inputting one or more of the following data (1-11)

regarding the fluid machinery:

1. Diameter (or numerical order) of suction port
2. Diameter (or numerical order) of discharge port
3. Rated output of motor driving the fluid machinery
4. Number of poles of motor driving the fluid machinery
5. Operating frequency of motor driving the fluid machinery
6. Rating plate specifications (flow rate-head) of the fluid machinery
7. Model name of the fluid machinery
8. Manufacturer's name of the fluid machinery
9. Number of impeller stages of the fluid machinery

10. Outer diameter of impeller of the fluid machinery

11. Test data regarding the flow rate-head and the flow rate-power consumption of the fluid machinery.

41. (Currently Amended) A method for reducing power consumption and promoting energy saving in fluid machinery by incorporating a device for energy saving into the fluid machinery, the method comprising:

identifying characteristics of the fluid machinery represented by flow rate-head characteristics of the fluid machinery to be diagnosed;

calculating a reduction in power consumption achieved when reducing a rotational speed of the fluid machinery, based on the identified characteristics of the fluid machinery; and

providing a device for energy saving to achieve the calculated reduction in power consumption to a user,

wherein said identifying comprises inputting one or more of the following data (1-11) regarding the fluid machinery:

1. Diameter (or numerical order) of suction port
2. Diameter (or numerical order) of discharge port
3. Rated output of motor driving the fluid machinery
4. Number of poles of motor driving the fluid machinery
5. Operating frequency of motor driving the fluid machinery
6. Rating plate specifications (flow rate-head) of the fluid machinery
7. Model name of the fluid machinery

8. Manufacturer's name of the fluid machinery

9. Number of impeller stages of the fluid machinery

10. Outer diameter of impeller of the fluid machinery

11. Test data regarding the flow rate-head and the flow rate-power consumption of the fluid machinery.

42. (Currently Amended) A method for reducing power consumption and promoting energy saving in fluid machinery by incorporating a device for energy saving into the fluid machinery, the method comprising:

identifying characteristics of the fluid machinery represented by flow rate-head characteristics of the fluid machinery to be diagnosed;

refining the identified characteristics of the fluid machinery by inputting a power consumption at the actual operating point;

calculating a reduction in power consumption achieved when reducing a rotational speed of the fluid machinery, based on the refined characteristics of the fluid machinery; and

providing a device for energy saving to achieve the calculated reduction in power consumption to a user,

wherein said identifying comprises inputting one or more of the following data (1-11) regarding the fluid machinery:

1. Diameter (or numerical order) of suction port

2. Diameter (or numerical order) of discharge port

3. Rated output of motor driving the fluid machinery

4. Number of poles of motor driving the fluid machinery

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5. Operating frequency of motor driving the fluid machinery
6. Rating plate specifications (flow rate-head) of the fluid machinery
7. Model name of the fluid machinery
8. Manufacturer's name of the fluid machinery
9. Number of impeller stages of the fluid machinery
10. Outer diameter of impeller of the fluid machinery
11. Test data regarding the flow rate-head and the flow rate-power consumption of the fluid machinery.